ELSEVIER

Nuclear Instruments and Methods in Physics Research B 154 (1999) ix–xi

NIM B
Beam Interactions with Materials & Atoms

www.elsevier.nl/locate/nimb

Contents

Editorial vii

Committees and Sponsors viii

I. Invited papers

Dénes Berényi and atomic collision physics in Debrecen
K.-O. Groeneveld 1
My views on physics and atomic physics, on science and human life
D. Berényi 10
Two- and three-body effects in fast ion–atom collisions and slow ion–surface interactions
N. Stolterfoht 13
Analytical approaches to the fragmentation of few-body Coulomb systems
J. Berakdar 25
Multivariable hypergeometric functions for ion–atom collisions
G. Gasaneo, F.D. Colavecchia and C.R. Garibotti 32
Rapid oscillation of electron distributions in low-energy ion–atom collisions
S.Yu. Ovchinnikov and J.H. Macek 41
New trends in the description of ion–atom collisions by time-dependent quantum methods
T. Kirchner, H.J. Lüdde, O.J. Kroneisen and R.M. Dreizler 46
Inner-shell ionization in ion–atom collisions – beyond the first-Born approximation
T. Mukoyama 54
Double detachment in collisions between protons and negative hydrogen ions
Dž. Belkić 62
Capture and ionization processes studied with COLTRIMS
M.A. Abdallah, A. Landers, M. Singh, W. Wolff, H.E. Wolf, E.Y. Kamber, M. Stöckli and C.L. Cocke 73
Absolute rates for radiative and non-radiative collisional deexcitation of metastable He^+ (2s) in targets of variable polarizability
I.A. Sellin, J.C. Levin, H.T. Schmidt, S.H. Schwartz, A. Fardi, K. Haghighat, H. Cederquist, L. Liljeby and A. Langereis 83
Electron impact ionization and excitation of laser-excited atoms: investigation by means of electron spectrometry
O.I. Zatsarinny, A. Dorn, H. Lörch, J. Nienhaus and W. Mehlhorn 90
Dielectronic recombination of Li-like fluorine ions
P. Glans, E. Lindroth, N. Eklöw, W. Zong, G. Gwinner, A.A. Saghiri, M. Pajek, H. Danared and R. Schuch 97
QED in heavy few-electron ions
T. Beier, A.N. Artemyev, J. Eichler, V.M. Shabaev, G. Soff and V.A. Yerokhin 102
Studies of state-selective electron capture using double translational energy spectroscopy
H.B. Gilbody 113
Multi-electron processes in atomic collisions – theory
L. Nagy 123

0168-583X/99/$ – see front matter © 1999 Elsevier Science B.V. All rights reserved.

Advances and challenges in collisions of fast ions with few-electron atoms
V.A. Sidorovich 131
Double-electron capture and radiative stabilization processes in slow ion–atom collisions
J.-Y. Chesnel, F. Frémont, B. Sulik, C. Ruiz-Méndez, H. Merabet, C. Bedouet, X. Husson, M. Grether and N. Stolterfoht 142
Resonant two-electron processes in ion–atom collisions
P.A. Závodszky, P. Richard and C.P. Bhalla 153
The hollow atoms
J.-P. Briand, V. Le Roux, N. Béchu, S. Dreuil, G. Machicoane, M. Prior and Z. Xie 166
Production of ultra slow antiprotons, its application to atomic collisions and atomic spectroscopy – ASACUSA project
Y. Yamazaki 174
Search for projectile charge dependence of kinetic electron emission from clean polycrystalline gold
H. Eder, F. Aumayr and H. Winter 185
Collisions between ultracold metastable He atoms
G. Woestenenk, H.C. Mastwijk, J.W. Thomsen, P. van der Straten, M. Pieksma, M. van Rijnbach and A. Niehaus 194

II. Contributed papers

Excitation of high-Z one- and two-electron ions in relativistic collisions with gaseous targets
T. Ludziejewski, Th. Stöhlker, H. Beyer, F. Bosch, S. Fritzsche, D.C. Ionescu, C. Kozhuharov, A. Krämer, D. Liesen, P. Mokler, P. Rymuza, Z. Stachura, P. Świat and A. Warczak 204
Research on electron impact inner-shell ionization by means of the measurement of post-collision interaction
B. Paripás, G. Víkor, K. Tőkési and A. Hiltunen 209
Contribution of the H(n = 3)+e$^-$ detachment channel in H$^-$/rare gas collisions
F. Penent, J.L. Montmagnon, J.P. Grouard, D. Modeley and L. Sarkadi 214
Critical validity assessment of theoretical models: charge-exchange at intermediate and high energies
Dž. Belkić 220
Multiple ionization of M- and N-shells in heavy atoms by O, Si and S ions
D. Banaś, J. Braziewicz, U. Majewska, M. Pajek, J. Semaniak, T. Czyżewski, M. Jaskóła, W. Kretschmer and T. Mukoyama 247
Asymptotic expansions for three-body continuum and bound states relevant for ion–atom collision processes
Sh.D. Kunikeev 252
Existence of the electron capture to the continuum peak at positron impact
K. Tőkési and Á. Kövér 259
Examination of initial and final state interactions in p+H collisions by the CTMC method
K. Tőkési and G. Hock 263
High resolution carbon and oxygen K–LL Auger spectra of carbon dioxide
A. Hiltunen, S. Aksela, Gy. Víkor, S. Ricz, Á. Kövér and B. Sulik 267
Determination of Ti and Ca Kα_5 and Kα_6 X-ray satellite energies at He ion bombardment
I. Török and T. Bondár 272
High resolution RTE measurements at 0° using a hemispherical analyser with lens and 2-D PSD
E.P. Benis, T.J.M. Zouros and P. Richard 276
Continuous electron spectra from 150 keV/u C$^+$+He, Ne, Ar collisions at electron emission angles from 0° to 180°
B. Sulik, Cs. Koncz, K. Tőkési, Á. Kövér, S. Ricz, Gy. Víkor, J.-Y. Chesnel, N. Stolterfoht and D. Berényi 281
Single and double K-shell vacancy production in N^{7+}+Ti collisions
B. Sulik, K. Tőkési, Y. Awaya, T. Kambara and Y. Kanai 286
Transfer ionization in fast Li^{3+} – He collisions
I. Mančev 291

Theoretical study of the simultaneous ionization and excitation of helium by fast charged projectiles
J.Zs. Mezei and L. Nagy 295
On the angular distribution of X rays of multiply ionized atoms
T. Papp 300
Interaction of highly charged ions with microcapillaries
K. Tőkési, L. Wirtz and J. Burgdörfer 307
Collisions of ionized hydrogen clusters with helium atoms: electron capture as a function of the cluster size
B. Farizon, M. Farizon, M.J. Gaillard, S. Louc, N. Gonçalves, H. Luna, G. Jalbert, N.V. de Castro Faria, M.-C. Bacchus-Montabonel, J.-P. Buchet and M. Carré 312
Stimulated emission and exciton complex in some insulator crystals irradiated by heavy ions
K. Kimura, J. Kaneko, S. Sharma and N. Itoh 318
Atomic collisions in secondary ion production by hydrogen near the electronic stopping power maximum
R. Neugebauer, J.A.M. Pereira, R. Wünsch, T. Jalowy and K.O. Groeneveld 325
Electron emission from thin foils induced by slowly moving heavy ions
H. Kerkow, R. Stolle, V.P. Petukhov and E.A. Romanovskii 330
Author index 335